coupling heat generated by the remotely-located heat source to the heat dissipating system by way of the loop heat pipe.

REMARKS

Regarding the status of the present application, Claims 1, 3 and 5 have been amended and Claims 1-6 are pending in this application. Reconsideration of this application is respectfully requested. It is respectfully submitted that the present response does not require further searching on the part of the Examiner. It is also respectfully submitted that this response places this application in condition for allowance, or in any event, places it is better condition for consideration on appeal.

The proposed drawing correction and/or the proposed substitute sheets of drawings. filed on 4/1/02 were disapproved because, in the Examiner's opinion, the proposed drawing corrections introduce new matter into the drawings. The Examiner stated that the original disclosure does not support the showing of item 10a as a heat dissipation/dissipating system. This rejection is not understood.

The previously filed amendment corrected the specification and drawings relating to reference characters "10", "14" and "15" objected to by the Examiner. The original specification referred to an exemplary heat transfer system 10, (or heat dissipation system 10), which was amended to recite exemplary heat transfer system 10a, (or heat dissipation system 10a). Therefore the subject matter "heat transfer system, or heat dissipation system was disclosed in the original application as filed. Changing the reference numeral of these elements does not introduce new matter into the application. The Examiner also did not object to the specification amendments that addressed these reference number corrections.

It is respectfully submitted that the amendments made to the drawings do not introduce new matter into the application. An additional set of replacement reproducing masters having the proposed amendments included therein are enclosed. Entry of the previously submitted amended drawings and replacement reproducing masters is respectfully requested.

The specification was objected to under 37 CFR § 1.71 because the originally filed specification fails to disclose a remotely-located heat source disposed ... at a location that it remote from the heat dissipating system. The amendment filed 4/1/02 was objected to under 35 U.S.C. § 132 because it introduces new matter into the disclosure. The Examiner indicated that the added material which is not supported by the original disclosure is "heat dissipation system 10a". It is respectfully submitted that the Examiner's rejection is in error.

The original specification as filed states at various places that "The present invention relates generally to spacecraft, and more specifically, to the transfer of heat from a remote heat source to a thermal radiator using a loop heat pipe", "the present invention provides for heat transfer systems and methods that use a loop heat pipe to transfer heat from a remotely located heat source to a spacecraft thermal radiator or other heat dissipating apparatus", "The loop heat pipe is used to transport heat from the remotely located heat dissipation component or heat source the thermal radiator or heat pipe panel", "for heat sources 14 mounted in locations

remote from radiator panels 12, 13", and "A heat source 14 is disposed 31 on a spacecraft 20 at a location that is remote from a thermal radiator 12, 13." Furthermore, originally filed Claim 3 recites "a heat source disposed at a location that is remote from heat dissipating apparatus" and originally filed Claim 5 recites "disposing a heat source on a spacecraft at a location that is remote from heat dissipating apparatus."

The "heat dissipating system" corresponds to the " thermal radiator", "heat dissipating apparatus", "heat pipe panel", "radiator panels 12, 13", or "heat dissipating apparatus" referred to in the originally filed application. Therefore, it is not understood how the Examiner can possibly contend that the originally filed specification does not disclose a remotely-located heat source disposed ... at a location that it remote from the heat dissipating system.

Therefore, it is respectfully submitted that the originally filed specification discloses "a remotely-located heat source disposed ... at a location that it remote from the heat dissipating system." Accordingly, withdrawal of the Examiner's objection is respectfully requested.

With regard to the amendment filed 4/1/02, the original specification as filed discloses that "Fig. 2 is a side view of the spacecraft 20 and heat dissipation system 10 shown in Fig. 1." Therefore a "heat dissipation system" is disclosed in the original specification as filed. The previous amendment changed the reference numeral of the heat dissipation system from 10 to 10a which is irrelevant to the fact that the heat dissipation system is disclosed in the application. Therefore, it is respectfully submitted that the "heat dissipation system" objected to by the Examiner is disclosed in the originally filed specification and is not objectionable under 37 CFR § 1.71. Accordingly, withdrawal of the Examiner's objection is respectfully requested.

Claims 1-6 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner indicated that "claims 1. 3 and 5 ... fails to disclose a remotely-located heat source disposed ... at a location that it remote from the heat dissipating system."

It is respectfully submitted that the arguments made above with regard to the specification clearly support the fact that the language in the amended Claims was present in the application as originally filed and that the this subject matter was described in the specification in a manner that is understood by those skilled in the art that supports the fact that the present inventors were in possession of the claimed invention. Accordingly, withdrawal of the Examiner's rejection is respectfully requested.

Claims 1-6 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,743,325 issued to Esposto. Claims 1, 3 and 5 have been amended to more clearly distinguish over the Esposto patent.

As was argued above, the originally filed specification discloses a "remotely-located heat source disposed ... at a location that it remote from the heat dissipating system". The amended Claims presented in the previous response do not contradict the originally filed specification.

In the present invention, the heat transfer system is used to dissipate heat from a heat dissipation component or heat source that is not disposed on either a heat pipe panel or a thermal radiator. The Examiner's position is that the Esposto patent discloses "A looped heat pipe (20) transfers heat energy to radiators (10, 12) from a remotely located (located inside space 22, see column 4, lines 20-22) heat source." It is respectfully submitted that this is not a disclosure or suggestion of the specifics of the presently claimed invention.

Column 4, lines 20-22 of the Esposto patent states that "Upon deployment, each radiator works to reject unwanted heat from the spacecraft. The interior space 22 where the heat generating modules will rest is also shown." The fact that Fig. 1 of the Esposto patent identifies the interior space 22 of the spacecraft is not a disclosure or suggestion of a remotely located heat source that is not disposed on a heat pipe panel or the heat dissipating system (radiator).

It is respectfully submitted that there is absolutely no disclosure or suggestion in the Esposto patent regarding specific locations of the heat sources. This is not the focus of the Esposto patent. In particular, there is no disclosure or suggestion in the Esposto patent of the existence of a heat source that is not located on either a heat pipe panel or a thermal radiator.

More particularly, the Esposto patent discloses "a closed-loop heat pipe transport design for a deployment application having a flexible section which connects to a payload structure and a deployable structure." The focus of the Esposto patent is on the deployable radiator and flexible interconnection. The Esposto patent goes on to state that "The flexible section folds over itself while the deployable structure is stowed. Upon rotation of the deployable structure around a predetermined axis, the flexible section unfolds, with a portion of the flexible section passing through the predetermined axis. When the deployable structure has completed its rotation and is fully deployed, the components of the flexible section will lie in substantially the same plane."

In the Esposto patent, what is disclosed is that a flexible serpentine-shaped section is used to connect a deployable radiator structure to a payload structure. The Esposto patent discloses that the serpentine section is designed to rotate by mean of hinges, as is shown in Fig. 1. The hinging action is shown in Fig. 4.

It is respectfully submitted that there is no specific disclosure or suggestion in the Esposto patent regarding locations of heat sources that are coupled to the deployable radiators. The fact that Fig. 1 of the Esposto patent identifies the interior space 22 of the spacecraft is not a disclosure or suggestion that the deployable radiators are coupled to a remotely-located heat source disposed on the spacecraft at a location that is remote from the heat dissipating system and that is not located on a heat pipe panel.

Therefore, with regard to Claim 1, it is respectfully submitted that the Esposto patent does not disclose or suggest "a remotely-located heat source disposed on the spacecraft at a location that is remote from the heat dissipating system and which is not located on a heat pipe panel " (i.e., the heat dissipating component is not located on a heat pipe panel or not mounted on a payload radiator), as is recited therein. Therefore, it is respectfully submitted that the

invention recited in Claim 1 is not disclosed or suggested by the Esposto patent. Accordingly, withdrawal of the Examiner's rejection and allowance of Claim 1 are respectfully requested.

With regard to Claim 3, it is respectfully submitted that the Esposto patent does not disclose or suggest "a remotely-located heat source disposed at a location that is remote from the heat dissipating system and which is not located on a heat pipe panel", as is recited therein. Therefore, it is respectfully submitted that the invention recited in Claim 3 is not disclosed or suggested by the Esposto patent. Accordingly, withdrawal of the Examiner's rejection and allowance of Claim 3 are respectfully requested.

With regard to Claim 5, it is respectfully submitted that the Esposto patent does not disclose or suggest "disposing a remotely-located heat source on a spacecraft at a location that is remote from a heat dissipating system and which is not located on a heat pipe panel", as is recited therein. Therefore, it is respectfully submitted that the invention recited in Claim 5 is not disclosed or suggested by the Esposto patent. Accordingly, withdrawal of the Examiner's rejection and allowance of Claim 5 are respectfully requested.

Dependent Claims 2, 4 and 6 are considered patentable based upon the allowability of Claims 1, 3 and 5 from which they depend. Accordingly, withdrawal of the Examiner's rejection and allowance of Claims 2, 4 and 6 are respectfully requested.

Attached hereto is a marked-up version of the changes made to claims by the present amendment. The attached page is captioned "Version with markings to show changes made."

The prior art heretofore made of record and not relied upon is considered pertinent to applicant's disclosure to the extent indicated by the Examiner.

In view of the above amendments and arguments, it is respectfully submitted that all pending Claims are not anticipated by, nor are they obvious in view of, the Esposto patent, and are therefore patentable. Accordingly, it is respectfully submitted that the present application is in condition for allowance. Reconsideration and allowance of this application is respectfully requested. It is again respectfully submitted that the present response does not require further searching by the Examiner, and places this application in condition for allowance, or in any event, places it is better condition for consideration on appeal.

Respectfully submitted,

Kenneth W. Float
Registration No. 29,233

The Law Offices of Kenneth W. Float
Office address: 2 Shire, Coto de Caza, CA 92679
Mailing address: P. O. Box 80790, Rancho Santa Margarita, CA 92688
Telephone: (949) 459-5519
Facsimile: (949) 459-5520

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

The following Claims have been amended as indicated.

1. (Amended) A heat transfer system comprising:

a spacecraft comprising a heat dissipating system;

a remotely-located heat source disposed on the spacecraft at a location that is remote from the heat dissipating system and which is not located on a heat pipe panel; and

a loop heat pipe thermally coupled between the remotely-located heat source and the heat dissipating system for coupling heat generated by the heat source to the heat dissipating system.

3. (Amended) A spacecraft comprising:

a heat dissipating system for radiating heat into space;

a remotely-located heat source disposed at a location that is remote from the heat dissipating system and which is not located on a heat pipe panel; and

a loop heat pipe thermally coupled between the remotely-located heat source and the heat dissipating system for coupling heat generated by the remotely-located heat source to the heat dissipating system.

5. (Amended) A heat dissipation method for use on a spacecraft comprising the steps of:

disposing a remotely-located heat source on a spacecraft at a location that is remote from a heat dissipating system and which is not located on a heat pipe panel;

thermally coupling a loop heat pipe between the remotely-located heat source and the heat dissipating system; and

coupling heat generated by the remotely-located heat source to the heat dissipating system by way of the loop heat pipe.